



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER OF PATENTS AND TRADEMARKS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/031,219	01/15/2002	Andrew Philip Churchill	CAF-29302/03	2624

25006 7590 05/20/2003

GIFFORD, KRASS, GROH, SPRINKLE  
ANDERSON & CITKOWSKI, PC  
280 N OLD WOODARD AVE  
SUITE 400  
BIRMINGHAM, MI 48009

EXAMINER

BOMAR, THOMAS S

ART UNIT PAPER NUMBER

3672

DATE MAILED: 05/20/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/031,219

Applicant(s)

CHURCHILL, ANDREW PHILIP

Examiner

Shane Bomar

Art Unit

3672

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 15 January 2002.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 36-62 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 36-59 is/are rejected.
- 7) ☒ Claim(s) 60-62 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 January 2002 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 4,6.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Drawings***

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the string must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

### ***Specification***

2. The disclosure is objected to because of the following informalities: On page 2, line 18, the phrase --being used-- appears to be missing between "tool" and "to".

Appropriate correction is required.

### ***Claim Objections***

3. Claim 59 is objected to because of the following informalities: It appears that --the-- is missing between "from" and "surface" in line 6. Appropriate correction is required.

### ***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

Art Unit: 3672

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 36-38, 41-44, 47, 50, and 53-59 are rejected under 35 U.S.C. 102(b) as being anticipated by US patent 4,310,050 to Bourgoyne, Jr.

Regarding claim 36, Bourgoyne discloses in Figs. 11-13 a downhole bypass tool comprising:

- A body adapted to be mounted on a tubular string (see col. 9, lines 43-45) and defining an axial through bore 47 to allow fluid to flow through the body and including a wall defining a fluid port 48 for permitting passage of fluid between the body bore and the exterior of the body (see col. 9, lines 57-61).
- An operating sleeve 41 mounted to the body and normally positioned to close the fluid port.
- An activating device (Fig. 12 or 13) adapted to be dropped through the string to land on the operating sleeve 41 (see col. 9, lines 66-68).
- A flow restriction is seen in the area of elements 56 and 57 in Figs. 12 and 13, or a flow restriction is seen at element 41a of Fig. 11, that is operatively associated with the operating sleeve 41 and located upstream of the port 48, the restriction being configured to create a fluid flow-related force on the operating sleeve for moving the sleeve to open the body port following landing of the activating device (see col. 9, lines 53-60).

Regarding claim 37, the activating device provides the flow restriction (see Figs. 12 and 13).

Regarding claim 38, a biasing member 46 urges the operating sleeve 41 to close the fluid port 48.

Regarding claim 41, element 41a is a first flow restriction and the second flow restriction is located near elements 56 and 57, both restrictions being located upstream of the port 48.

Regarding claim 42, the activating device is a sleeve having an axial through bore, as can be seen from Figs. 12 or 13.

Regarding claims 43 and 44, activating device 66 is a deformable plug, which is in the form of a ball.

Regarding claim 47, Bourgoyne inherently discloses a method of providing fluid bypass in a downhole string, the method comprising the steps of:

- Providing a bypass tool having a body defining an axial through bore 47 and including a wall defining a fluid port 48, and an operating sleeve 41 mounted to the body and normally positioned to close the fluid port (see col. 9, lines 57-61).
- Running the tool into a bore on a string (see col. 9, lines 43-47).
- Dropping an activating device through the string to land on the operating sleeve (see col. 3, lines 6-8).
- Passing fluid through the string, body and operating sleeve, and also a flow restriction operatively associated with the operating sleeve and located upstream of the port, at selected flow rates to create selected fluid flow-related forces on the

Art Unit: 3672

operating sleeve to move the sleeve to open the port (see col. 3, lines 6-18 and col. 10, line 13 through col. 11, line 13).

Regarding claim 50, Bourgoyne discloses a downhole tool having first and second configurations and adapted to be run into a bore in the first configuration, the tool comprising:

- A body adapted to be mounted on a tubular string (see col. 9, lines 43-45) and defining an axial through bore 47 to allow fluid to flow through the body while the tool remains in the first configuration, which is closed as seen in Fig. 11.
- An activating sleeve configured to travel through the string to land on the body and activate the tool (see col. 9, lines 66-68).
- Flow responsive means are provided for cycling the activated tool between the first and second configurations in response to variations in fluid flowrate through the tool (see col. 10, lines 29-35).

Regarding claim 53, a means 46 is provided for biasing the tool towards the first configuration.

Regarding claim 54, the flow responsive means includes a differential piston 58 (see col. 10, lines 13-28).

Regarding claims 55 and 56, the flow responsive means includes a flow restriction that is defined by the activating sleeve (see the restriction near elements 56 and 57 in Figs. 12 and 13).

Regarding claim 57, the flow responsive means includes element 41a as a first flow restriction and the second flow restriction is located near elements 56 and 57.

Regarding claim 58, the tool is a bypass tool, the body defining a bypass port 48 and wherein the bypass port is closed in the first configuration and open in the second configuration (see col. 9, lines 47-60).

Regarding claim 59, Bourgoyne inherently discloses a method of operating a downhole tool, the method comprising:

- Running a tool into a bore on a string with the tool in a first closed configuration (see Fig. 11).
- Passing fluid through the string and an axial through bore 47 defined by the tool with the tool remaining in the first configuration (see col. 9, lines 43-50).
- Passing an activating sleeve (seen in Figs. 12 or 13) from the surface through the string to land on and activate the tool (see col. 9, lines 66-68).
- Cycling the activated tool between first and second configurations in response to variations in fluid flowrate through the tool (see col. 10, lines 29-35).

6. Claims 47-49 are rejected under 35 U.S.C. 102(e) as being anticipated by US patent 6,189,618 to Beeman et al.

Regarding claim 47, Beeman et al disclose in Figs. 1 and 2A a method of providing fluid bypass in a downhole string, the method comprising the steps of:

- Providing a bypass tool 10 having a body 20 defining an axial through bore 24 and including a wall defining a fluid port 26, 36, and an operating sleeve 50 mounted to the body and normally positioned to close the fluid port (see col. 5, lines 19-24 and Fig. 1).
- Running the tool into a bore on a string (see col. 4, lines 63-64).

- Dropping an activating device 60 through the string to land on the operating sleeve (see col. 5, lines 44-46).
- Passing fluid through the string, body and operating sleeve, and also a flow restriction operatively associated with the operating sleeve and located upstream of the port, at selected flow rates to create selected fluid flow-related forces on the operating sleeve to move the sleeve to open the port (see col. 5, lines 44-50).

Regarding claims 48 and 49, the method further comprises maintaining fluid flow through the string, body and operating sleeve at a normal operational level at least as the activating device passes through the string and lands on the operating sleeve, and at least initially inherently retains the sleeve in position to close the fluid port (see col. 2, lines 28-61).

### *Claim Rejections - 35 USC § 103*

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 39, 40, and 52 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bourgoyne.

Bourgoyne teaches a downhole tool as applied to claims 36 or 50 above. It is not taught that the tool further comprises locking means for retaining the operating sleeve in position to close the fluid port or that the locking means is a coupling that is released upon landing of the activating sleeve onto the operating sleeve.

Bourgoyne does teach that shear pins 57 releasably lock, or couple, sleeve 56 to body 53 of the activating sleeve (see col. 10, lines 8-10). At the time the invention was made, it would have been obvious to one of ordinary skill in the art to also provide the operating sleeve with pins 57 so that they would fail due to the increased pressure from the landing of the activating sleeve (see col. 10, lines 41-44).

9. Claims 45, 46, and 51 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bourgoyne in view of US patent 6,173,795 to McGarian et al.

Bourgoyne teaches a downhole tool as applied to claims 36 or 50 above. It is not taught that the tool further comprises indexing means for controlling movement of the operating sleeve between the first and second configuration, or that the indexing means includes a cam arrangement.

McGarian et al teach a downhole tool 2 that comprises an indexing means 53, 55 (see Figs. 1A, 2A, and 3A) that is a cam arrangement for controlling the movement of an operating sleeve 24 and configured to permit the sleeve 24 to be retained in one of the port 16 open and port closing positions (see Fig. 2 and 3) while fluid flow through the tool is maintained at a normal operational level (see col. 1, line 38 through col. 2, line 5). At the time the invention was made, it would have been obvious to one of ordinary skill in the art to provide Bourgoyne's downhole tool with the indexing means taught by McGarian et al. One would have been motivated to make this combination so that the tool would be capable of being reset many times while remaining downhole (see col. 1, lines 38-40 of '795).

Art Unit: 3672

*Allowable Subject Matter*

10. Claims 60-62 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.


*Conclusion*


11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Bobo, Carmicheal et al, Churchill, Hennig et al, Hudson et al, Koot, Leeb et al, Montgomery, Nelson et al, Oliver, Rogers et al, and Whiteley et al teach various types of downhole bypass tools with flow restrictions and/or activating devices.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shane Bomar whose telephone number is 703-305-4849. The examiner can normally be reached on Monday - Thursday from 7:00am to 4:30pm. The examiner can also be reached on alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Bagnell can be reached on 703-308-2151. The fax phone numbers for the organization where this application or proceeding is assigned are 703-305-7687 for regular communications and 703-305-7687 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-306-4198.

  
David J. Bagnell  
Supervisory Patent Examiner  
Art Unit 3672

tsb   
April 22, 2003